DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 73.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-010723
Date Inspected: 16-Nov-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: HoChang, Korea

OSM Arrival Time: 800
OSM Departure Time: 1800
Location: Unyang, Korea

CWI Name: Sang Ho Kwak

Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**CWI Present:**	☑ Yes	☐ No	
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
				Approved WPS:	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Pier E2 Bearing and Shear key

Summary of Items Observed:

The following report is based on METS observations at HoChang Machinery Industries (HMI). On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HMI) located at Unyang and Onsan Korea and Korea Precision Co. located at Dooseo Korea. The purpose of this trip was to observe quality control during fabrication and process of following items.

Forging

Note; Solid shafts at Kyungjeon Grinding located at KimHae for final machining.

1. Bearing Bottom Housing (B1-07/F07302-010): Completed painting.
2. Bearing Bottom Housing (B2-07/F07302-020): Completed painting.
3. Bearing Bottom Housing (B3-07/F07302-030): Completed painting.
4. Bearing Bottom Housing (B4-07/F07302-040): Completed painting.
5. Spherical Ring (S1-07/F07302-050): Continue final machining.
6. Spherical Ring (S2-07/F07302-060): Continue final machining.
7. Spherical Ring (S3-07/F07302-070): Continue final machining.
8. Spherical Ring (S4-07/F07302-080): Continue final machining.
9. Solid Shaft (B1-02/F07302-090): Continue final machining.
10. Solid Shaft (B2-02/F07302-100): Continue final machining.
11. Solid Shaft (B3-02/F07302-110): Continue final machining.
12. Solid Shaft (B4-02/F07302-120): Continue final machining.

• F number is DooSan Production Number.
• B number is drawing Number.

Casting

On this date the Caltrans Quality Assurance (QA) inspector, Dong J. Shin arrived at HoChang Machinery Industries (HMI) located at Unyang, Korea and DooSan Heavy Industries(DHI) located at Changwon, Korea. The purpose of this trip was to observe quality control during fabrication and process of following items.

Samjeon NDT technician Mr. D. Y. Whang performed final MT on housing after final machining and minor defect repair of Bearing Top Housings and Shear Key housings. QA inspector checked the following items prior to testing: Calibration Date, AC lifting power, and Pie gauge sensitivity. MPT used Yoke probe with wet visible method.

Samjeon NDT technician Mr. G. T. Kim performed UT at minor repair areas on Bearing Top Housings and Shear Key Housings. QA inspector verified the following items prior to testing: UT Calibration date, calibration date and DAC curve, transducer size and frequency. Transducers Used: Straight Beam: 24mm dia. 2MHz, Dual Straight beam: 6 x 10mm 4MHz and miniature angle: 8 x 9mm 4 MHz 45º.

On this date, HMI Qualified welder Mr. O. J. Park performed minor repair welding on Bearing Top Housing, Shear key Stub and Shear Key Housing. QA inspector and HMI QC Inspector verified welding parameters prior to start welding. Welding process utilized was Gas Tungsten Arc Welding (GTAW) with ER70S-6 with diameter 2. 4mm rod manufactured by Hyundai Steel, Brand name ST-50.6 with 100% Argon gas. QA inspector verified welding parameter range was 15-17 volts, 200-245 amps, travel speed 74-89mm/min, Gas flow 12-15little/min., preheat temperature over 150ºC and interpass temperature of less than 250º C. After completing repair welding, HMIC increased the preheat to 300ºC for PWHT and covered by Heat blanket for slow cool down. All of welding parameters comply with approved welding procedure specifications No A-T-Z1Z1-147.

1. Bearing Top Housing (B1-06, C07039-010): Completed Final Machining.
2. Bearing Top Housing (B2-06, C07039-020): Completed Final Machining.
3. Bearing Top Housing (B3-06, C07039-030): Continue minor repair welding.
4. Bearing Top Housing (B4-06, C07039-040): Completed Final Machining.
5. Bearing Hold Down Assembly (B1-01-1, C07039-050): Start blasting and Coating.
6. Bearing Hold Down Assembly (B1-01-2, C07039-060): Start blasting and Coating.
7. Bearing Hold Down Assembly (B2-01-1, C07039-070): Start blasting and Coating.
8. Bearing Hold Down Assembly (B2-01-2, C07039-080): Start blasting and Coating.
9. Bearing Hold Down Assembly (B3-01-1, C07039-170): Start blasting and Coating.
10. Bearing Hold Down Assembly (B3-01-2, C07039-180): Start blasting and Coating.
11. Bearing Hold Down Assembly (B4-01-1, C07039-190): Start blasting and Coating.
12. Bearing Hold Down Assembly (B4-01-2, C07039-200): Start blasting and Coating.
13. Shear Key Stub (S1-01, C07039-090): Completed Final Machining.
14. Shear Key Stub (S2-01, C07039-100): Completed Final Machining.
15. Shear Key Stub (S3-01, C07039-110): Completed Final Machining.
16. Shear Key Stub (S4-01, C07039-120): Continue minor repair welding.

17. Shear key Housing (S1-03, C07039-130): Completed Final Machining.
18. Shear key Housing (S2-03, C07039-140): Completed Final Machining.
19. Shear key Housing (S3-03, C07039-150): Completed Final Machining.
20. Shear key Housing (S4-03, C07039-160): Continue minor repair welding.

* S and B number is drawing number.
* C number is DHI ID number.

Summary of Conversations:

*Discuss with Mr. S. H. Kwak regarding general project schedule.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Shin,DJ	Quality Assurance Inspector
Reviewed By:	Edmondson,Fred	QA Reviewer